

# COSMETIC FINISHING

Adding a dimension of aesthetics into functionality

Set yourself apart from your competition with these aesthetically-finishing on your components. With the world of consumer electronics offering endless opportunities for ideas, Unisteel has developed creative solutions – from colors to artistic textures - for customers who want to add an element of aesthetics into their products.

## UNI-SHINE®

UNI-SHINE® is a proprietary texturing method which reveals the natural shine of stainless steel. Available in various unique patterns and textures to suit and match the component's surroundings, this cosmetic finish gives a luxurious feel to any application and offers excellent durability.

### Features & Benefits

- Available in various cuts
- Meets RoHS requirements
- Provides excellent resistance to wear and scratch
- Offers long lasting finish



## UNI-COLOR®

UNI-COLOR® is a special color coating that is designed and formulated to meet high-end cosmetic needs and market trends. Available in both spray paint and physical vapor deposition (PVD) techniques, this environmentally-friendly cosmetic coating offers excellent coverage and resistance against wear and corrosion.

### Physical Vapor Deposition (PVD)

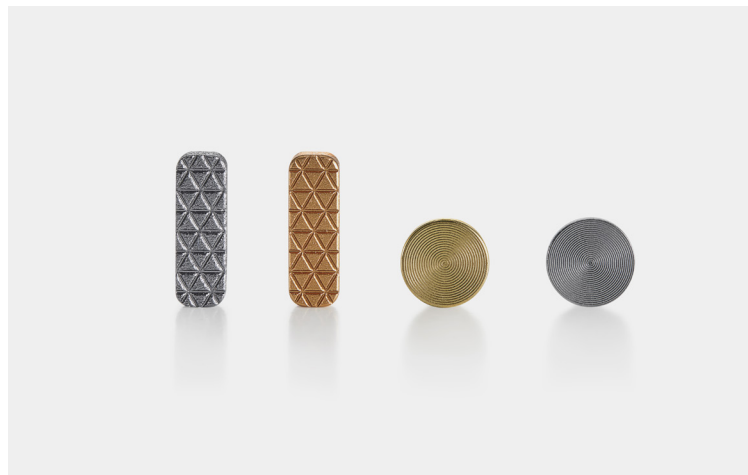
PVD is a vacuum coating process to produce a conformal metal-based thin film that can be uniformly deposited on electrically conductive surfaces. Using the sputtering method, a single coating layer provides ample coverage without modifying the surface profile. This technique is used in many electronic industries including optical media, optics and semiconductor components.

### Features & Benefits

- Exceptional aesthetic finish
- Uniform coating thickness
- Superior resistance to wear and corrosion
- PVD coating has a high level of hardness

### Applications

- Mobile phones
- Digital cameras
- Notebooks and tablets
- Consumer electronics
- Automotive and industrial products



## Unisteel Test Specifications

(Comparison between spray paint and PVD methods)

Criteria	Spray Paint	PVD
<b>Abrasion resistance</b> • Samsung certified eraser with test load of $1.98 \pm 0.05N$	• No ground exposure with a width of <2mm • Min. 150 cycles (test on coupon)	• No ground exposure with a width of <2mm • Min. 180 cycles (coating thickness: $1.1 \pm 0.01 \mu m$ , test on coupon)
<b>Alcohol resistance</b> • Ethyl alcohol (76.9 - 81.4%) • Load: $1.98 \pm 0.05N$	• No ground exposure after a min. of 30 cycles (test on coupon)	• No ground exposure after a min. of 30 cycles (test on coupon)
<b>Hardness (Pencil scratch test)</b> • 3H pencil scratch for 5 times at $45^\circ$ with load of $5 \pm 0.05N$	• No peeling, crack or flaw (test on coupon)	• No peeling, crack or flaw (test on coupon)
<b>Chemical resistance</b> • 2min exposure in MEK ( $21-25^\circ C$ , 50% RH)	• No visible change (No discoloration, corrosion, cracking, bubble, peeling)	• No visible change (No discoloration, corrosion, cracking, bubble, peeling)
<b>Extended storage duration</b> • 24hr at $65 \pm 2^\circ C$ , 90-95% RH • 2hr storage at room temperature • Visual inspection + adhesion test (by 3M #600 tape)	• No peeling • No significant discoloration	• No peeling • No significant discoloration
<b>Environmental exposure</b> • 7hr at $65^\circ C$ , 90% RH • $-40^\circ C$ to $65^\circ C$ with 40min dwell and $17^\circ C/min$ transition	• No visual degradation after 3 cycles (No significant discoloration, corrosion, peeling)	• No visual degradation after 3 cycles (No significant discoloration, corrosion, peeling)
<b>Perspiration resistance</b> • 0.05ml artificial sweat on the top of the coating • 12hr storage at $65^\circ C$ , 90% RH	• No discoloration on surface	• No discoloration on surface
<b>Corrosion resistance (Salt water spray)</b> • 5% salt water • 8hr - 48hr spraying (subject to the raw material grade and the coating thickness)	• No corrosion • No peeling	• No corrosion • No peeling
<b>Adhesion resistance</b> • Cross-cut (intervals of 1.5mm test by 3M #600 tape)	• No peeling in 5% or more of a grid square • No peeling other than in areas near the cut (test on coupon)	• No peeling in 5% or more of a grid square • No peeling other than in areas near the cut (test on coupon)

UNI-SHINE® and UNI-COLOR® are registered trademarks of Unisteel.



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